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☞See advertisement on last page.

Poetry.

SONG OF LIGHTNING.

Away, away, through the sightless air—
Stretch forth your iron thread;
For I would not dim my sandals fair
With the dust ye tamely tread;
Aye, rear it up on its million piers—
Let it reach the world around,
And the journey ye make in a hundred years
I'll clear at a single bound!

Tho' I cannot toil like the groaning slave
Ye have fetter'd with iron skill,
To ferry you over the boundless wave,
Or grind in the noisy mill;
Let him sing his giant strength and speed:
Why, a single shaft of mine
Would give that monster a flight, indeed,
To the depths of the ocean brine.

No, no! I'm the spirit of light and love,
To my unseen hand 'tis given
To pencil the ambient clouds above,
And polish the stars of heaven.
I scatter the golden rays of fire
On the horizon far below—
And deck the skies where storms expire,
With my red and dazzling glow.

The deepest recesses of earth are mine—
I traverse its silent core;
Around me the stary diamonds shine,
And the sparkling fields of ore;
And oft I leap from my throne on high
To the depths of the ocean's caves,
Where the fadeless forests of coral lie,
Far under the world of waves.

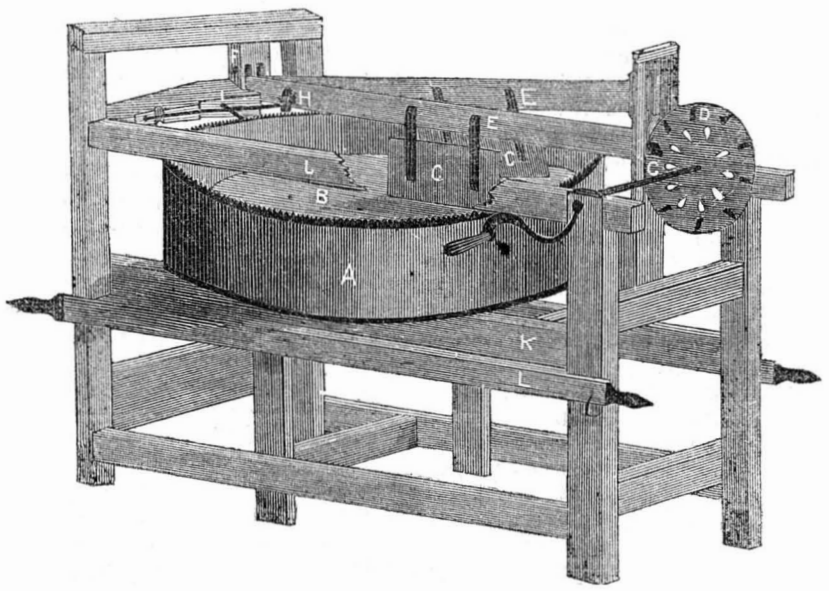
With a glance I cleave the sky in twain,
I light it with a glare,
When fall the boding drops of rain,
Through the darkly curtained air;
From the Alps' or the highest Andes' crag,
From the peaks of eternal snow,
The dazzling folds of my fiery flag
Gleam o'er the world below.

Ye tremble when my legions come—
When my quivering sword leaps out
O'er the hills that echo my thunder-drum,
And read with my joyous shout:
Ye quail on the land or upon the seas,
Ye stand in your fear aghast,
To see me burn the stalwart trees,
Or shiver the stately mast.

The hieroglyphs on the Persian wall,
The letters of high command,
Where the prophet read the tyrant's fall,
Were traced with my burning hand;
And oft in fire have I wrote since then,
What angry Heaven decreed—
But the sealed eyes of sinful men
Were all too blind to read.

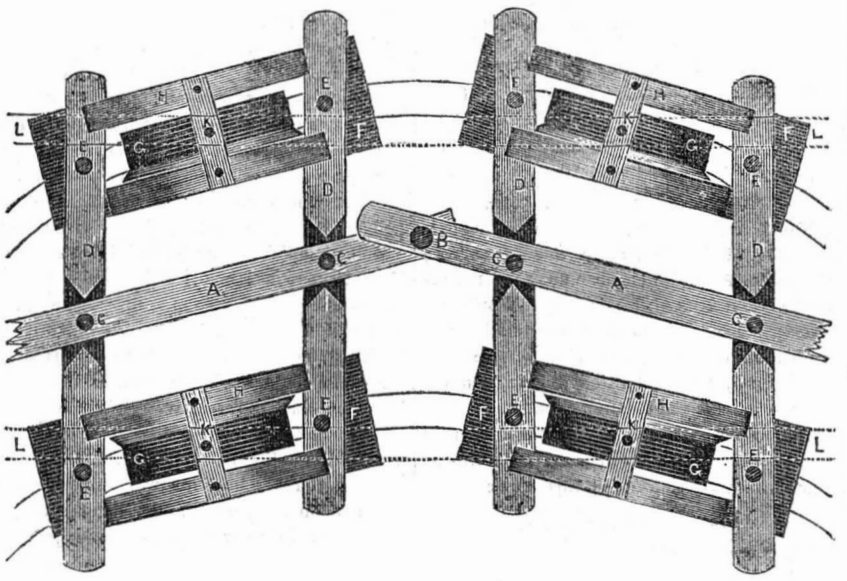
At last the hour of light is here,
And kings no more shall blind,
Nor the bigots crush with craven fear,
The forward march of mind;
The words of truth and freedom's rays
Are from my pinions hurled,
And soon the sun of better days
Shall rise upon the world.

NEW MEAT CHOPPER.



A number of machines have been constructed for the purpose of mincing meat for sausages and "mince collops," &c. and among others of a like nature, but not a like construction, we present an engraving of one that is very simple and which practically operates well. A, is a large round block of wood fixed firmly upon a table, or as we have represented it, on a strong frame K. This block has a strong upright stationary iron shaft, which runs through its centre from below in an opening in the block large enough to allow it to move round. This shaft does not extend to the top of the block but just far enough to keep it steady. B, is the inside of the block on which the meat is placed to be chopped. C C, are two knives, secured by bands on two reciprocating arms E E. These arms are secured or made fast in the stock F, by a bolt. D, is the cam wheel that lifts the arms of the knives, and G is the shaft of said wheel operated by the handles so as by a rotary motion to give the knives a reciprocating motion — This is done by small projections called wipers, cast on the wheel D; which wipers have their sides that catch into the ends of the arms E E, of a convex form, to lift the said arms and let them fall upon the block, each arm being lifted alternately for that purpose. D has a set of wipers cast upon each side to operate the two arms, which are kept a small distance apart by a partition in the frame. J, is a cross beam with part of it removed to show the knives. The block is moved round so as to let all the meat come under the knives. This is done by having a small rack of iron fixed on A, like a rim, and this rack shifts the block round the space of one notch by the stroke of each knife, according to the angle at which each knife is dropped on the block by the wheel D, and two palls, one H, of which is now seen, but the other is hid from view. These palls operate in a way well known to every mechanic, feeding round the block in a very simple manner. Any person might construct a machine of this kind themselves and make it all of wood but the knives. The wipers on D, might be made of wood set in a shaft to lift up the arms E E alternately, and the block might be moved round by hand without employing palls or a rack on the rim of the block.

ANOTHER RAILROAD TRUCK FOR NARROW CURVES.



This engraving represents a very simple arrangement for turning short curves, invented by Mr. John H. Quail, of Philadelphia, and patented a few years ago. The curved lines is the track, and the truck is now moving over the said curve. The dotted lines L L, is the bottom frame of the car, which is attached to the truck by vertical pivots K K K K, on a line of intersection with the axles. The said pivots pass through cross pieces, which join two elliptical springs H, provided for each wheel and placed above each wheel frame. G G, are the wheels, each of which has a separate axle and is placed in a separate frame or bearings formed of two longitudinal and two cross beams D D, one beam above and one below F, with a solid bolster in the middle, on which rests and is secured the jointed motive lever A A This lever is united to the frame by pivot bolts C C C C, and it is jointed in the middle by a pivot B, passing through the ends at that part, the one formed with a crotch and embracing the other (which has a slot in it,) between. It will be observed that the construction of this truck gives it great flexibility, an idea of which is better conveyed by the engraving, than all we could say about it. The chief advantage claimed for this track is the manner in which the wheels in all cases conform to the track, fitting close to the rails, so that there will be no lateral motion, and thus prevent the spreading apart of the rails, "also, as the bearings are directly over the points of contact, between the wheels and rails—the cars must run more steady on curves than those of common construction." This is the opinion of some good mechanics. There is no danger at least of the axles breaking.

We have now a short communication on hand on the subject of railroad curves, which we shall publish next week, and which expresses some opinions and views akin to those we hold ourselves.

RAIL ROAD NEWS.

Hudson River Railroad.

The Hudson River Railroad extending from this city to Albany, is in rapid progress towards completion. In going up the Hudson the line is only once lost sight of, viz: some few miles above Sing Sing, where it makes a detour into the interior, and does not reappear on the margin of the river for the space of about ten miles.

The road will be open fifty miles—taking the terminus on 14th street this city, as the starting point—by the middle of next July, and the entire distance to Albany will probably be laid with rail within two years. It is a work of immense labor. Between this city and Poughkeepsie full 3000 feet of solid rock had to be cut through or tunelled, and about two-thirds of this arduous task is accomplished. Then there were inumerable inlets to be bridged or crossed by raised causeways, faced with sea walls, and much of this work has also been done. The locomotive, in dashing through "Sleepy Hollow," the dream-land of Rip Van Winkle, will puff smoke almost into the windows of Washington Irving's Swiss cottage, pass within a few rods of James K. Paulding's castle, throw its sparks among the young trees in Mr. Livingston's plantation, and take liberties with the real estate of half a dozen other millionaries. The entire cost of the road will be about $7,500,000, and it will be the straightest railway in the country, only diverging eight miles in the hundred from a right line.

Some think that the Hudson river day boats will not be able to run in competition with the cars on this road. Passengers starting hence in the morning for Albany will be there by noon, and after transacting business for a couple of hours, may come back to this city in time for tea! Four hours to four and a half hours will be the running time, and the fare each way to be $1.50.

But we have strong doubt of the ability of this road to compete with the River Boats. If it can carry passengers for less than three dollars each, we can only pronounce the other railroads in this and other states, "to be shaving mills." No railroad that we know of can carry passengers for *one* cent per mile not even one in the heart of this city.

The Directors of the Madison Indianapolis Railroad at a meeting recently held, "unanimously ordered, that it shall not hereafter be competent for any officer of this Company to cause or permit any car of this Company to be run on the Sabbath for any purpose whatever; and that the President of this Board give notice that hereafter the cars of this company will not be run, either for passengers or freight, on the Sabbath."

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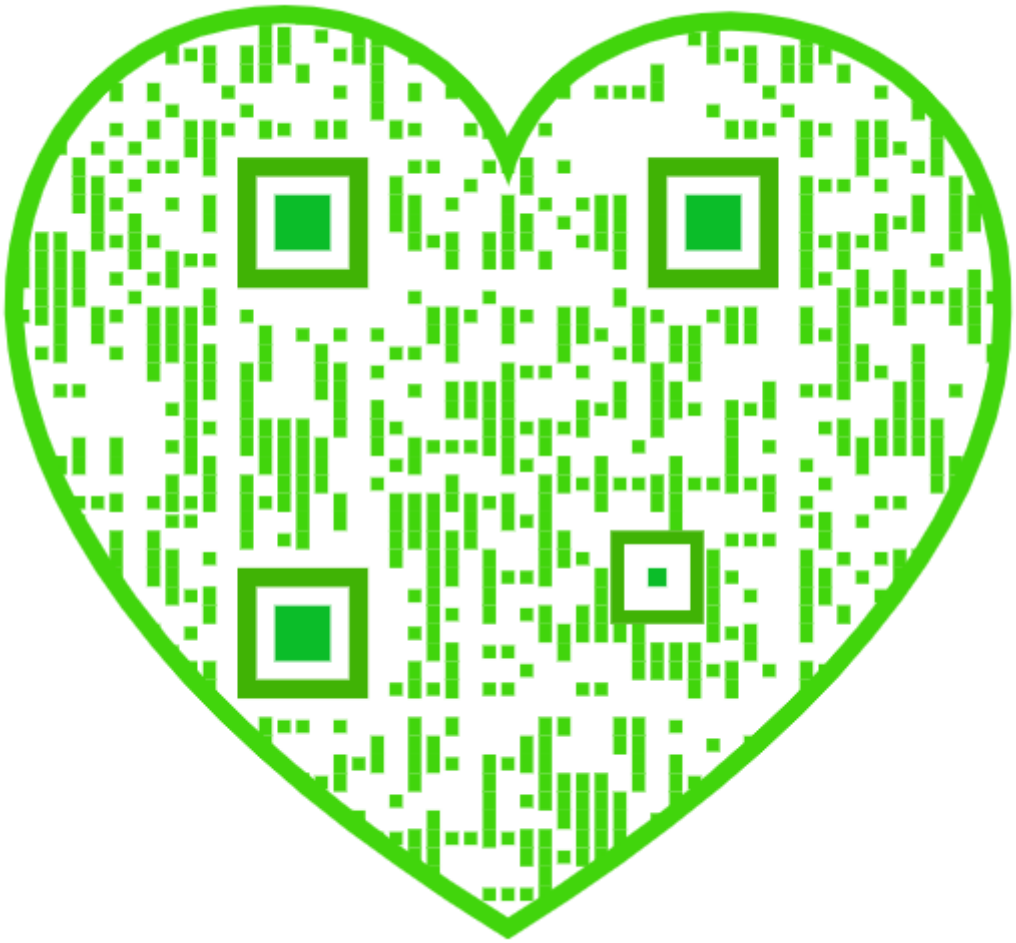

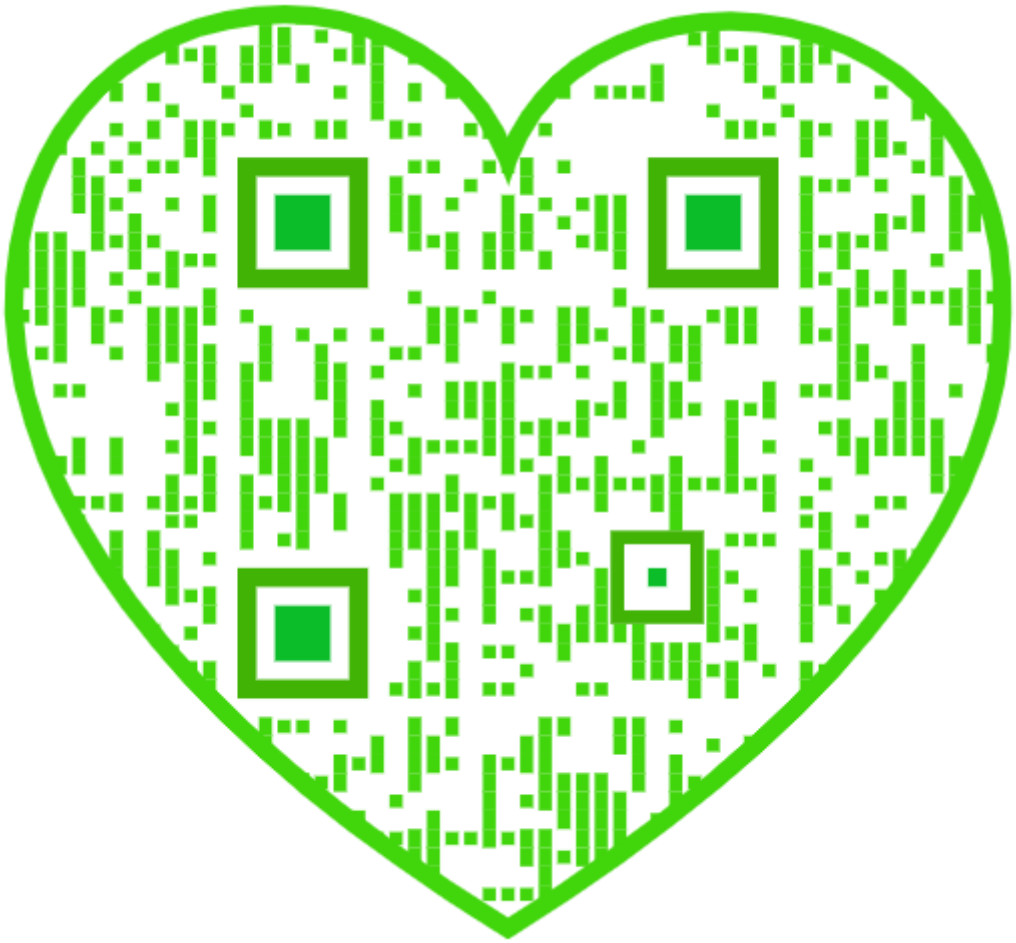

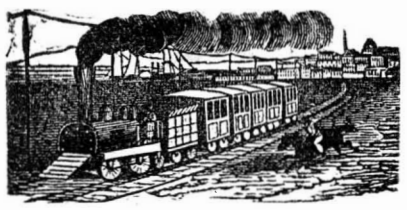

The Golden Land.

A short time ago, the most flattering accounts were received in this city from California about the mountains of gold and the valleys flowing with silver. Some believed it was a joke, while others believed it to be a "hue and cry" for some speculative purpose, and to the latter implication we must plead guilty. We believed that the accounts received here a short time ago about vessels being deserted by their crews and houses by their inhabitants, who had proceeded to the El Dorado valley, was all a hoax or something worse. But it seems, after all, that Madam Rumor sometimes tells true tales. The golden hills of California it seems are not imaginary elevations, but real *bona fide* treasure houses.—Chaps that go there can jink out the yellow dust almost by saying "open sesame." The President in his Message to Congress has confirmed the extraordinary fugitive accounts heretofore received, and recommends the Sub Treasury to be extended to our new territory as a place of Mintage and deposit, a good recommendation. To the United States of America now belongs the most valuable metal regions and the most fertile lands in the whole world. We have all the natural advantages to make our nation the richest and most powerful on the globe. But with all these natural advantages what would we be as a nation, if our citizens were not intelligent and enterprising ? The President in his Message, points to the late war with Mexico to demonstrate the influence of our institutions in raising up an instantaneous army, but it is the people who make *the Institutions—the Institutions* do not make them. Mexico is a Republic, but what are her people in comparison with ours.

We hope that the gold and silver that is about to flow into the treasury of our nation, will not be the means of corrupting or enervating our people. Rome was mistress of the world until her citizens drank their beverages from golden bowls. We therefore wish better fortune to our potatoe diggers than our gold diggers, as we consider that land to be the Golden Land, which presents the greatest number of fields waving with golden harvests.

But it is really wonderful to behold the mania among our citizens caused by the California gold discoveries. Every twentieth person we meet in the street is bound for California, bag and baggage. Seven vessels left this port on one day this week, bound for the gold region, with some hundreds of passengers. It is said there is as much gold in California as will enrich all the inhabitants of the United States. The passion for going to California is not confined to a few reckless young men—men of capital are going off in droves and the brokers in Wall street are dropping their merchandize in bills to speculate in the real dust. Over $30,000 worth of it was deposited in the Philadelphia Mint on Saturday last, and bags of the dust are pouring in from all quarters.

The Cholera.

The Cholera has at length reached our shores, but we are grateful that it is in so mild a form. One vessel from Havre had seven deaths on the passage, and a number are in the Quarantine Hospital. But there is nothing to fear—it is of a less deadly form and there will not be so many victims as there were by the ship fever last year. But one case has as yet occurred in our city, and there are no fears of its ravages. The deaths that have occurred at the Quarantine Hospital, were those of emigrants, whose physical condition made them fit subjects for the disease.

There are no new cases since the first arrival, and it may be, that there will be none. Good food, cleanliness and proper ventilation are the bulwarks of health, and there need be no fears of the cholera when these bulwarks are erected. In England and Scotland, by proper attention to cleanliness the disease has been very mild.

LITERARY NOTICES.

Holden's Dollar Mngazine.

The January number of this popular monthly is at a premium, as we predicted it would be. It contains something like 16 or 18 engravings of every description, among which we can only mention Cole's Painting of Genesee Falls ; Dr. William Turner, the Chrono Thermal Practitioner ; a Portrait of Louis Blanc, by Count d'Orsay ; *a full length Portrait of Horace Greeley, hat, boots and all* ; the Atheneum, Manchester, England, and some half dozen satirical portraits. There are articles from Horace Greeley, Park Benjamin, Augustine Duganne, M. H. C. Hosmer, William Wallace, C. W. Holden and others. We presume this beautiful No. will secure at least 10,000 additional names for the Holden, as no family will wish to lose so much variety and worth for *one dollar*. Cheaper than the cheapest and better than the best, our Blackwood will still continue the favorite of the people and prove conclusively that literature can be good as well as cheap. The highest compliment we can pay Mr. Holden is to say that his is the most popular monthly ever published in the world.

We have since writing the above, received vol. 2 of Holden's from July to December 1848. It is exquisitely bound in muslin, gilt edged and faced, and is sent by mail at $1,25 per copy or three copies for $3. New subscribers should not fail of obtaining one of them.

Websters Unabridged Dictionary.

This splendid work is pronounced by all to be the best Dictionary of the English language which has ever been published. It meets with ready sale in all countries where it has been introduced and the most talented of English authors have pronounced it as truly *the* standard Dictionary of the age. Published at Springfield, Mass. by G. & C. Merriam, who are owners of the copy right and to whom orders should be addressed ; price single copy $6. See advertisement on another page.

The Water Cure Journal and Herald of Reforms.

This is a Magazine Published by Fowler & Wells, No. 131 Nassau st. N. Y., gentlemen who publish a great number of excellent works, because they are useful. The Water Cure Journal is edited by J. Shew, M. D. an able and scientific gentleman, who knows well how to treat his subject.

Ranlett's Architect.

No. 5 Vol. 2 of this splendid work has been issued. We have always spoken in the highest terms respecting this beautiful work. The present number contains three designs for cottages with sections and full specifications, and should be in the possession of every man who designs to build a cottage, and who does not. The literary matter too is always chaste and of a highly dignified character

Berford's World as It Moves.

No. 3 of this weekly Magazine is a great number. It is a splendid and a cheap work. The original articles are able and the selections capital. It should be in every family.

Worcester Mechanics Fair.

We are indebted to Mr. P. W. Taft, superintendent of the Worcester County (Mass.) Mechanics Association, for a copy of the reports of their first exhibition held in Worcester, last September. In looking over this Report, we were much pleased to observe the care exercised by the Committee to give as much information and explanation about each article exhibited, as possible. We have received no report of any other Fair, that contains so much useful information in this respect.

The Genesee Farmer.

We perceive that this valuable monthly Magazine has attained to the end of its 9th volume, and will commence a new volume with the new year. We know of no work better conducted and afforded to subscribers for so small amount, as the Genessee Farmer, no farmer in this State should want it and there is not one who cannot pay for it.

The President's Message was brought from Baltimore, in four minutes less than three hours, being the quickest time ever made between the two cities.

To make a cheap Endless Chain Pump.

Take two pine plank, (any other durable wood, such as butternut, or cherry will answer,) 1½ inches thick and 5 inches wide, joint them straight—take a half round and work a half hollow in each of them, 5-8 of an inch in depth, so that when placed together the bore will be 1-4 of an inch in diameter for two feet and a half from the bottom, the remainder or upper part to be made a size larger, that the chain and valves may move freely. Make a spout, of a board two feet long, six in width, and 4 deep ; place this spout in the curb, 17 inches from the bottom, and with the top of your pump tube neatly fitted in this spout. Let the pump run so low that the water will never settle below it, by at least a foot—nail a board on the back side of the pump for it to rest upon at the bottom, and for the greater convenience in fixing the wheel and the spout, let it stand near one side of the well. Place a wheel, made of plank one foot in diameter, with six or eight crotched irons, driven into its circumference, to keep the chain from slipping, with axle-tree and crank on the top of the curb, one edge of the wheel to be exactly over the edge of the pump. Calculate how many feet of chain it will take to go over the wheel, passing seven or eight inches below the bottom of the pump, then up through the pump to the wheel again. The chain may be made of horse, trace, or halter chain, cut apart once in 2½ feet and united by a link or a piece of iron with the middle straight, to receive the leather valves, with rings bent at each end to connect the pieces of chains, the straight part to be two and a half inches, that the valves may have a little play. The leather should be thick hard sole leather, cut into circular pieces rather smaller than the bore of the pump, and two of these pieces—one of which should be about two thirds of the size of the other, and placed the lowest of the two—are put on the straight part of the S, these connected with the chains, and it is ready for use.

The chain should not run within 12 or 18 inches of the bottom of the well, as it will otherwise rile the water in its movements, and there should be a thick piece of round hard wood placed on the front of the lower part of the pump to prevent the chain from wearing that as it passes in the bottom.

A chain made of stout wire made into links of two inches in length, the pieces for the leather valves being of the same, will answer very well.

The two pieces of plank for the pump tube, after worked out as above, should be permanently nailed together and painted. The pump can be easily repaired, all the parts being simple in their construction, and the whole light and easily removed, if necessary so to do.

Coolness in Danger.

There is no class of men who require to be more cool in danger, than the engineers who run locomotives They should possess intrepidity without rashness, and generally speaking they are not without those qualities. The necessity of being possessed of these qualities was never more apparent to us than in the account which we read in the Philadelphia Ledger two weeks ago, of a locomotive which was detached from the Philadelphia train at New Brunswick, and left in charge of the fireman, for the purpose of being placed in the engine house. The fireman, it appears, in backing the engine, came in so rapidly that the speed could not be checked until it came in contact with the rear wall of the building which was much broken by the collision. The falling of the broken wall led the fireman to think that the building was about to come down upon him, whereupon he threw the machinery in forward motion and jumped from the engine to save himself. The engine under a heavy head of steam instantly started forward and ran with great speed toward the rail-road bridge, the draw of which was off, and the engine was precipitated into the canal, with a tremendous crash, which destroyed it.

If the locomotive had been in charge of the engineer, he being used to command and possessing self confidence, he would have *run* with the engine—and not *run* himself, leaving it to its own guidance.

Ship Building in the United States.

The amount built for the year, ending June 30, 1848, as we learn from the Boston Journal, was 316,076 tons, viz :—254 ships and barques, 174 brigs, 701 schooners, 547 sloops and canal boats, and 175 steamboats. From 1815 to 1848 there have been built 31,616 vessels of all descriptions, whose aggregate tonnage was 3,909,149. Average 29½ years about 105,000 tons per year. In 1848, 110 more ships and barques were built than in any other year.—From 1801 to 1807, the tonnage built in the United States amounted to 774,922 tons, being an average per year of 110,703 tons.

Singular Effects of Attraction.

The Edinburgh Journal of Sciences has a very interesting paper, by Dr. Hancock, on the motions that result from merely mixing a few drops of alcohol with a small phial of Laurel Oil. To exhibit this singular phenomenon, which seems to bear some analogy with the motions of the planetary orbs, the drops of alcohol should be introduced at different intervals of time. A revolving or circular motion instantly commences in the oil, carrying the alcoholic globules through a series of mutual attractions and repulsions, which will last for many days. The round bodies, which seem to move perfectly free through the fluid turning in a small eccentric curve at each extremity of their course, passing each other rapidly without touching. In the course of his experiments Dr. Hancock observed particles of the fluid to separate in large globular portions ; these commence a similar revolution, and the smaller ones quitted their course and revolved about the larger, while the later still pursue their gyrations after the manner of primary planets and their secondaries.

Manganese.

The Monticello Watchman mentions that Mr. Benjamin Kile, of Liberty, recently discovered a large quantity of this mineral on his farm, while ditching a swamp. He has had it analyzed by Mr. Chilton, of New-York. The ore contains 68 per cent of the hydrated peroxide of manganese—12 per cent less than the best found in our country, and equal we believe, to the best found in Europe. It lies so near the surface, that it can be procured at a cost not exceeding one dollar per ton.

Axe Factory.

The Axe manufactory of Mr. Simmonds at Cohoes, N. Y. turns out about one thousand dozen axes every month and can scarcely supply the demand at that rate. Mr. Simmonds' axes have long been famous. This is owing to great experience and care in the execution and the employment of the of the best material in their manufacture.

At Madison, Morris County, N. J., there is said to be a cider mill which consumes 1200 bushels of apples per day. The apples are not ground or broken by squeezing between nuts as in the common cider mill, but they are cut into very thin slices by sharp knives around two revolving cylinders, and then pressed in a machine, from which the juice comes out entirely free from the pulp and other things which are found in new cider at the old mills—the cider returning its sweetness a longer time.

An interesting Scientific acquisition has just been made in Europe says "Galignani," by M. Andraud, the engineer so well-known by his works and experiments on compressed air. At the shop of a dealer in second-hand articles, he discovered and purchased the electrifying machine still, after a lapse of nearly 80 years, in an excellent state of preservation, of Benjamin Franklin, which is supposed to have been made at Philadelphia.

A quantity of good tea, equal to that raised in China, was raised in Brazil last year. Specimens of both the black and green have been exhibited at Washington and pronounced by judges to be excellent.

The ancients consecrated the rose to Harpocrates, the god of silence, and therefore often placed it in their rooms for the receiving of guests—a quiet hint, we think, to modern fashionable.

The Virginia Iron Works, Wheeling, turn out about 1000 kegs of very superior nails per week.

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The Mechanic Arts.

The following are condensed extracts taken from an address delivered by Lewis Kirk, Esq. Superintendent of the Machine Shop of the Reading Railroad, Pa. It was delivered at a complimentary supper given to Mr. Kirk by the workmen, and it was first published in the Reading Gazette.

An occasion like this—met as we have for social converse—may not be an inappropriate one for a brief allusion to the progress and present condition of the Mechanic Arts—a subject of peculiar interest to us connected as it is with the chosen business of our lives, and one in which we all feel a just pride.—And well may every mechanic be proud of that employment which has enlarged the boundaries of human knowledge and added infinitely to the comfort and happiness of the world!

It is by Mechanical improvements that the moderns excel the nations of antiquity.—In the fine arts, in statuary and painting, in poetry and oratory, we have no superiority, of which to boast. But the extent of our improvements in more important, because more practical branches of knowledge, no one knows, but he who will trace their progress through the dark ages, down to the present time, when the discovery of steam power gave a new impulse to the arts and general civilization. It is now but about seventy five years, since the first rude and clumsy Steam Engine was added to the labor-saving machinery of the world. Rude it was, it is true, and costly in its working, but it gave to the world a power which has produced effects which no calculation can estimate, no imagination grasp.

This is emphatically an age of improvement in the mechanic arts. In the year 1807, the first steamboat was put in successful operation. An American gave it to the world.—Forty one years after, and behold its power and usefulness. The locomotive made its appearance but thirty years ago—the same mighty power differently harnessed.

Discovery after discovery has been crowded upon us until the age of miracles seems almost returned, and no attainment seems too extravagant. Had we been told a few years ago that in 1848 the Air would be filled with Aerial vehicles crowded with passengers and pursuing their flight with the directness of a bird to their points of destination, or that by some contrivance, thoughts and words should be transmitted from Montreal to New Orleans in an instant of time, and answers as speedily returned, which prediction would have seemed the most extravagant ?—And yet one has become of daily occurrence and has almost ceased to excite surprise.

What then does the future contain ? Shall some mighty power be discovered which like a sleeping grant lies waiting its time—a power before which even steam shall be insignificant? Shall our commmon roads become thoroughfares for locomotives, or shall the air be filled with travellers passing high over the mountain tops ? Who shall venture to limit science ? Who shall say this can be done and nothing more ? No one dares do so. All experience teaches us that the march of science is onward—that upon time and space she is daily making encroachments and that whilst the human intellect continues to work the empire of the mechanic must ever enlarge. In this great work our country stands in the foremost rank. American skill—American ingenuity, are known throughout the world.

And now let me do justice to our fellow-workmen abroad. It is the impression of some that in the manufacturing of machinery our country claims precedence of the world. It is not necessary to her glory that she should urge such an extravagant claim. In all the solidity that liberal expense can give, the elegance which wealth creates, regardless of cost; in that which unbounded capital and long experience can offer, we must acknowledge superiority abroad. But it is well to know that whatever America wishes to do she can do: that there can be no demand upon her mechanical resources that she is not ready and able to meet, and that in ingenuity and inventive skill she may defy competition of the world. But in one important branch of mechanical skill, America can more than compete with the rest of the world. There is one machine second to none in usefulness that has been brought nearer perfection in America than in any other country. I mean the Locomotive. Among the eighty-three on this road may be found those which for adaptation to the purpose for which they were intended (the drawing of heavy loads) have probably no equal in the world ; and as for speed the engines from your own workshops have certainly no superiors in America.

There is nothing more gratifying to the American abroad than to discover that the invention of his native land have found their way in to the workshops of other countries.—A part of my experience in mechanics, was in the superintendence of extensive manufacturing establishments in St. Petersburg, Russia. Under my charge were workmen from every nation. They were there from England, from Ireland and Scotland, France, and Germany and Denmark and Italy and their representatives. There were Tartars and Moguls—but among them all—the American had no superior.

Nineteen miles from St. Petersburg, at Boulpany, the Emperor has established a depot for the collection ot all the useful and interesting mechanical inventions of the world. It is the school for the young Russian mechanic, and we might search the world in vain for its equal. Whatever the representatives of that empire abroad, its ministers or consuls, find of interest, is here brought together, and weeks might be spent, and profitably too, in examination and studying the vast collection. No American can walk through these extended rooms without feeling proud of the mechanics of his native country. There stands the cotton gin, the spinning frame, with all the American improvements—the various nail machinery, the machine for turning lasts and gunstocks, Whitimore's card setting machine, models of ships, steamboats, locomotives, and a great variety of other productions that American skill and ingenuity have given to the world.

But there are improvements in the Mechanic Arts which only the mechanic can properly appreciate. Every one can admire the mighty steam engine, the huge steamboat, or the locomotive, which rushes along with its thousand tons, and speed which defies the swiftest courier. But the mechanic finds in the humble means for constructing these proud monuments of human intellect and skill, he discovers in the improvements made in the tools of the workshop, evidence of genius equal, perhaps greater, than that displayed in the ultimate result of all this contrivance. Little indeed could we accomplish if the machine shop were thrown back to the limited resources of a period but a few years past.—The mechanic will comprehend me when I call to his mind the fact that the whole system of sliding lathes has had its origin, and attained its present perfection during a period within his recollection. We have ceased to regard with wonder the operations of the lathe, the boring machine, the screw cutting machine, or the horizontal and vertical planing machine, and yet go back but a few years and these most ingenious and valuable inventions were unknown.

There is much that I might say, did time permit, of our favorite pursuit; much that I would urge upon the consideration of the American mechanic. But I have trespassed longer upon your patience than I intended,—Remember that your calling is an important one ; the position you hold equally important.

The mechanics of this Nation have it in their power, by their numbers and intelligence to make themselves felt as they always must be respected. Let the aim of every working man be to elevate his moral and intellectual character as he advances in the knowledge peculiar to his occupation, and the world shall daily have new cause to appreciate the dignity of labor.

The Gold Mines in Virginia promise to rival those of California. One panful of the ore last week produced $125 of pure gold, and Commodore Stockton with three negroes, pounded out six pounds, worth $1000, in two or three days.

The Raspberry.

The followiug valuable information relative to this delightful fruit, condensed from the Macon, *Geo.* Journal will we know be found exceedingly interesting to many of our readers.

Scarcely any fruit is more easily cultivated, more agreeable to the taste, or more healthful than the raspberry. It should find a place in every garden, especially those which are too limited in size for the culture of fruit frees. It will grow in the shade as well as in exposed positions, and is an abundant bearer.

Although there are several American varieties, they are as much inferior to the new improved European sorts as a persimmon is to the most delicious peach. The European Raspberry, derives its name from Mount Ida, in the south of Europe, whence it was supposed first to have been brought. It is now, however, naturalized all over Europe, is cultivated everywhere, and may be found wild in the forests. It is a shrub, rising from four to six feet high. The shoots are slender, but not climbing as is the case with most of the American varieties. The roots are perennial, the shoots only being biennial, that is, the shoots which sprung up last year from the root, will bear fruit this year and then die in the autumn. Those which sprung up this year, will bear fruit next year, die, and so on.

Although they will thrive well in almost any soil, still they will do best in a rich or well manured land, mixed with a good deal of leaf mould, or rotten wood; and a moist situation is preferable to a dry one.

In making a plantation, dig trenches six feet apart, not less than twelve inches wide, and sixteen or eighteen inches deep. Fill them with a mixture of rich earth, leaf, mould, or any kind of decayed vegetable matter, and particularly rotten wood, of which they are very fond. Plant them in the fall, two feet apart, prune and water them immediately, in order to settle the earth around the fine fibrous roots. In the spring give them a little dressing of manure, and scatter saw-dust, or rotten wood on the surface clear of weeds. The plants produce a small crop the first year ; and a plantation made in this way, will, by good treatment, last for ten years.

Every autumn cut off the dead stems, thin out and regulate the young shoots, and in the spring before the buds expand cut off about a foot of the top, and tie up the shoots, where they need it.

The fruit is a very agreeeble sub-acid, exceedingly juicy, and has a peculiar flavor. Besides the use of the berries in a fresh state for pies and tarts, the expressed juice is excellent for jelly, and boiled with sugar and vinegar will form the celebrated raspberry vinegar which when put into bottles will keep for several years The raspberry vinegar is deemed so wholesome, that a spoonful of it, mixed with a tumbler of water, is by all European physicians, recommended as the very best beverage for allaying thirst in fevers. This fruit dissolves the tartar of the teeth, and never produces any acetous fermentation in the stomach, besides it is highly remommended to all rheumatic patients.

The best kinds are the red and the yellow Antwerp. The Falstaff, and the Queen Victoria, both red, raised lately in England, and recently introduced into America, are widely celebrated as the finest kind known. The Queen Victoria Raspberry, in England, ripens through the whole summer, from July to December.

On the Silk-Worm.

Some curious observations have been just published by Mr. Murray, on the "Cultivation of the Silk-Worm," from which we copy the following interest account of this lady-adorning insect.

"The insect, from which the silk is procured reposes motionless for the period of nearly six months, in a minute round body, called the ovum, or egg. From thence it springs, under the form of a little elongated animal with eight pairs of feet, a caterpillar, or larva. This caterpillar, improperly called silk-worm, feeds on the leaves of the mulberry. It increases rapidly in size ; so much so, that its skin in six or seven days after birth cannot contain the internal organs. In its turn, this skin bursts,—and the little insect comes forth in a new dress advancing toward another stage of maturity for seven days more. There are altogether, under this state of being, four distinct changes of skin. When the silk-worm feels that it is about to quit its fifth skin, it looks out for a secure and retired situation, and there constructs a dormitory, where it may be safe from external contingencies. It then spins its silken web, disposing it in such a manner as to leave on oval cavity. This ball is called the cocoon. The larva casts off its last skin in this abode, to become a being of another, and altogether different from the appearance it had before assumed. In this singular form, in which it somewhat resembles a child in swaddling bands, it is called crysallis, aurelia, or nympha. In twenty days after the transformation of the larva, or caterpillar, into the crysallis or aurelia, entirely effected within the cavity of the silken cocoon. This is the imago, or winged state of the animal, called phalena, or moth—the most perfect state of this strange microcosm. The moth soon lays eggs ; these (about six months after) in their turn again produce larvæ. This larva spins the cocoon, and the same interesting circle of changes is thus repeated.

Henrietta Rhodes in a communication to the 'Society of arts, manufactures and commerce," says, that a fibre of silk, unwound from the cocoon, extends 404 yards; even dry, it weighs three grains. One lb. avoirdupois is equal to 525 miles in length, and 47 lbs. would encircle the globe ! The silk, as spun by the insect, is in the form of fine threads, or fibres, which vary in color, from white to reddish yellow. It is very elastic : possessing considerable strength, and covered with varnish, to which its elasticity may be imputed. This varnish being soluble in boiling water, but not so in alcohol, has somewhat the nature of gum, or perhaps rather of a nature intermediate between gum and gelatine. The silk imported from China is always white, and apparently of a stronger, rougher, and coarser consistency than that from Bengal, which is yellow. The Italian silk is generally yellow.

When to Speak.

A man of sense regards time as well as matter in what he says. There is a time to speak, and a time to keep silence; and for want of understanding the latter many persons expose a degree of ignorance which operates much against them ; when, if they had held their peace, they would have passed for wise men, and in fact their silence would have been an evidence of wisdom. If a person knows but little he should be sensible of that fact, and say but little. He then may pass very well among wise men ; but if he open his mouth, others will get an insight to the emptiness of his skull. But persons of really weak minds are very apt to be the most talkative, and by thus spreading out all their wares at once they show how limited their stock is. A person who has but little of a good thing should try to make it go a good ways, by using it sparingly. A few words of sense will go much farther than a volume of words without ideas. If therefore one has nothing to say, he had better be silent.

Oaks.

Prof. Beck says the oaks of the forest are known with tolerable certainty, to attain the ages of 800 or 900 years, and are the most aged trees that we possess. Pines are stated by Dr. Williams, in his history of Vermont io live from 350 to 400 years. Of the oaks comprised under the Linnæan genus quercus, botanists are acquainted with more than 440 species, of which upwards of one-half belong to America. In this State there are fifteen various species, as follows :—Mossy cup, post white, swamp white, swamp chesnut, yellow rock chesnut, dwarf chesnut, willow, black scrub, black, red or scarlet, pin and red oak. The white oak is the most valuable of all being extensively employed in ship building. In England, in 100 years' time, the price of ship building advanced 100 per cent. Sinclair, in his Code of Agriculture states that a 75 gun ship requires 200 loads of wood, the produce of 50 acres, each tree standing 33 feet apart. Hence the importance of cultivating the oak and where the young trees are raised, the ground should be cultivated for 20 years at least.

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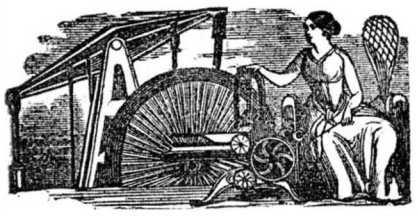
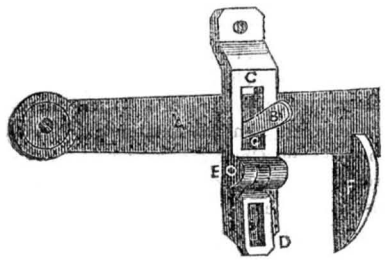


New Inventions.

Improved Iron Bedstead.

Mr. James Collins, of South Boston, Mass., is the inventor of a beautiful iron bedstead, which should command attention and come into general use. It is made of hollow taper iron tubes and the parts are attached to one another by peculiar dove-tail joints, so that the bedstead can be taken down and put up again in a few minutes. The same principle upon which these bedsteads are constructed can be applied to the manufacture of all kinds of furniture, which can be made plain or ornamental as desired. Owing to the parts being made hollow, the bedstead or other furniture can be made very light—much lighter than wood, for this form combines the greatest strength with the least weight of metal. There can be no doubt but iron bedsteads will yet supersede all others, as they should do, and Mr. Collins' (who is a machinist at Mr. Coney's) possesses merits which should arrest the attention of those desiring to invest money in a manufacture which will yet become very extensive.

Morris' Patent Combined Latch and Lock.



This very ingenious and simple improvement is designed for securing doors in a very convenient, safe and permanent manner, dispensing with the bolt now used in addition to the ordinary latch. There has been presented to the public a device for a similar purpose, but found impracticable. This simple apparatus is formed by inserting in the latch a metal pin, which works up and down in a slot in the strap, said strap is secured to the door in a similar manner of the ordinary door strap, to confine the latch thereto. The following is a description of the above cut:—A, Latch; B, catch or pin on latch A; C, strap with a slot G, for catch B, to work in; D hasp, which being thrown up over catch B, permanently secures latch A; E, joint in which the hasp D works; F, catch to hold latch A; H, strap with slot.

Extensive arrangements have been made for the manufacture and sale of this Patent Latch, for which a *Premium* was awarded by the American Institute at their late Fair. All orders and communications addressed to Messrs. Engelbrecht & Eddy, No. 132 Nassau st. New York, sole proprietors for the United States, will receive prompt attention. The price for this improvement will not exceed $1 50, per doz.

Munger's Yankee Turbine Wheel.

We have been informed that Mr. Hiram Munger, of Manchester, N. H. has made some very important improvements on his Water Turbine Wheel, which has been pronounced by those who have used it to be most excellent, from its real practical results, the only test of its merits. He can drive one wheel according to the supply of water, from three to one hundred horse power. These kinds of wheels are coming more and more into general use, and we have frequent enquiries respecting their size, power, &c. Those who desire more information about them, will receive the same cheerfully by addressing Mr. Munger, post paid, who has made arrangements to sell rights at a very reasonable price.

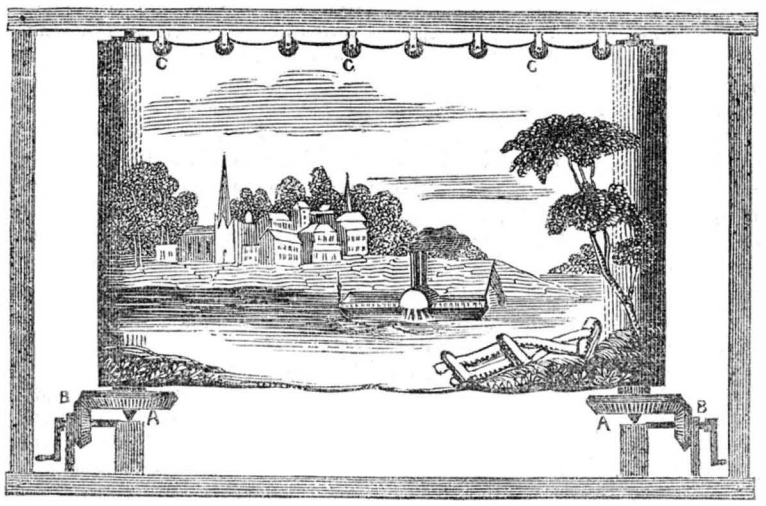
We notice in a foreign exchange that a machine has been invented to make spectacles. It is said to perfect them glass and all, but we doubt this.

Instantaneous Alarm.

The Rev. Charles Brooks of Boston, has communicated to the American Academy of Arts and Science three plans—one by which the hours of time may be struck, at the same instant, on every public bell of the city, and in every private dwelling; another, by which the alarm of fire may be given at the same moment, throughout the city, and the place of the fire indicated at each of the engine-houses simultaneously. A third plan is one by which all the lamps in the streets may be lighted or extinguished together, at any given moment.

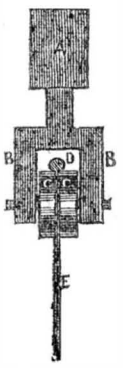
We have seen the same plans proposed before, and in respect to the clock alarm, it is not a new invention. We should like to see the latter plan carried out, and if it is a practicable invention why should it not be adopted at once.

BANVARD'S PANORAMA.---Figure 1.



We here present an engraving of the machinery employed by the renowned artist Banvard in operating his wonderful Panorama of the Mississippi. The mechanical devices employed are very simple but answer the purpose in a most admirable manner. The canvass is wound upon one large vertical roller while it is being unrolled from the other.—This is done by bevel gearing A and B. As there is a great extent of canvass spread at once, which being painted is very heavy, it is very important to hold it up between the rollers and prevent it from what is technically termed *sagging*. To accomplish this object well, there is a cross beam erected in which there are set a double row of pulleys C C C. The manner in which this is done will be better understood, however, by examining fig. 2, which is an end section. A, is a beam running along above B B, in which the pulleys C C, are erected. These two pulleys C C, are fixed in B B, so as to receive the panorama canvass between them—therefore the edge of the canvass is only seen in this view. On

FIG. 2.

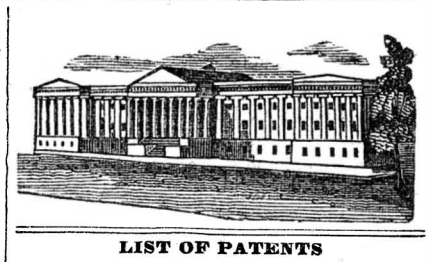


the upper edge or it may be called "a selvage," there is sewed a thick cord or small rope D, and as this rope rests on part of both the pulleys—running along the tops of the whole of them in the like manner—the canvass is rolled up along the whole length of the line without any sensible dropping of it at one place more than another. This is a very ingenious way to hold up the canvass and yet allow it to be wound freely on the large rollers.

The distinguished artist is now in the Old World, and in the capital of the British empire he has been treated with that consideration which has so uniformly distinguished the English people in respect to American artists. The Panorama of the Mississippi has had an astonishing effect upon all classes in London. The most of the English people think that our Western country is nothing but a wild-man-of-the-woods region, and no doubt but many places on the Mississippi are wild enough, but Banvard's panorama presents many scenes where the poet might indulge his fancy and the lover of the picturesque sigh to behold in reality. We hope that Mr. Banvard's success will be commensurate with the greatness of his Panorama, which is the largest ever exhibited.

Combined Wrench and Screw Driver.

This is a very neat and useful tool, for machinists and especially tentors in factories, who are obliged to carry a wrench always in the pocket. It is simply a wrench such as we have before described in the Scientific American combined with a screw driver, or it may be combined in the same manner with other tools fitted for that purpose. A is the handle, D, is a screw nut with an interior thread worked by the thumb which raises or lowers E, the upper jaw of the wrench, by the rack of the same which extends through the nut. B is the screw driver. It is made with a round head and passes into a circular recess cast in the end of the handle. This recess has a small groove cut in one side of it extending upwards and another crosswise. These grooves are for the purpose of retaining the screw driver in the handle by a spring C, with a nib on the inner end of it which fits into the cross groove, and the spring itself which answers the purpose of a feather in the other groove, thus serving to keep the driver firm and snug in the handle. This tool is manufactured by and secured to J. O. Lewis Worcester, Mass. There is nothing that facilitates work more than a good handy tool and nothing keeps a mechanic in better temper. We therefore think that this tool will soon be universally introduced as its very simplicity proclaims its utility.



LIST OF PATENTS

ISSUED FROM THE UNITED STATES PATENT OFFICE,

For the week ending Dec. 5, 1848.

To Daniel Cushing, of Aurora, Ill., for improvement in Harvesting Machines. Patented Nov. 21*, 1848.

To Horatio N. Barrow, of East Windsor, Conn. for improved composition for the Pastel Vat to be used in Dyeing. Patented Dec. 5, 1848.

To George Emerson, of Dyersville, R. I. for Machine for Grinding Card Teeth. Patented Dec. 5, 1848.

To Oliver Allen, of Norwich, Conn., for an improved Gun Harpoon. Patented Dec. 5, 1848.

To M. A. B Cook, of Boston, Mass. for improvement in Smoothing Irons. Patented Dec. 5, 1848.

To J. T. Foster and R. L. Bailey, of New York City, for improved Rock Driller. Patented Dec. 5, 1848.

To Abraham Bassford, of New York City, for improved Cushion for Billiard Tables.—Patented Dec. 5, 1848.

To Lyman King, assignee of James M. Cook, of Taunton, Mass., for improvement in Car Wheels. Patented Dec. 5, 1848.

To U. E. Bleecker and S. D. Vose, of Albany, N. Y. for improvement in Stove Flues.—Patented Dec. 5, 1848.

To George E. Waring, of Stamford, Conn., for improvement in Plates for Boiler Holes in Cooking Stoves. Patented Dec. 5, 1848.

To E. E. Hawley, of Middletown, Conn., for improvement in Hand Cultivators. Patented Dec. 5, 1848.

To Alexander Bain, of London, England, for improvement in copying surfaces by Electricity. Patented in England May 27, 1843, in America Dec. 5, 1848.

To Henry Ruttan, of Cobourg, Canada, for improvement in Warming and Ventillating Buildings. Patented in England June 23, 1848, in America Dec. 5, 1848.

DESIGNS.

To Isaac T. Baker, assignor to Cornelius & Co. of Philadelphia, Pa., for Design for Furniture Ornaments. Patented Dec. 5, 1848.

To John P. Rathbone, of Albany, N. Y. for Design for Stoves. Patented Dec. 5, 1848.

* This patent was delayed in the issue on account ot one of the claims being contested, but now removed.

INVENTOR'S CLAIMS.

We have concluded to publish no more of the Patent Claims, as we are not able to keep up with the date of the patents granted, without occupying too much of our space. Those of our subscribers, who wish to know the claim of any patent granted during each current year will be furnished with the same if they desire. Those who wish to get claims for patents prior to the current year, will be furnished with the same by a reasonable compensation for our trouble.

Rock Drilling Machine.

It will be seen by our list of Patents that Messrs. Foster and Bailey of this city have been granted a patent for their valuable machine for drilling rocks. This Machine has justly been pronounced the best portable rock driller ever constructed. Its mechanical construction for drilling underground in mines, is the most perfect of any that ever has come under our notice, and this is the opinion of all who have seen it operate. Messrs. Foster & Bailey can receive their Letters Patent by calling at this office.

It is reported that Commodore Parker and Commanders Dupont, Buchanan and Barron, of the Navy, have received furloughs from the Department, for the purpose of proceeding to Europe, to organize the new Navy recently created by the Federal German government.

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NEW YORK, DECEMBER 16, 1848.

Patent Cases.
Woodworth's Planing Machine.

One of the most important and interesting suits for infringment of a patent, was recently tried in the U. S. Circuit Court at Baltimore, before Chief Justice Taney and Judge Heath. The complaint was for an infringement of the patent of William Woodworth, deceased, for a planing machine—a patent known now to almost every child in the land by the amount of litigation arising therefrom. The complainants were George Woodworth and Jas G. Wilson, and the defendants Thos. Earickson, John Wernaug and D. B. Banks; and Isaac Brown; and Henry Herring. There were three distinct parties as defendants and the issue involved was the same in each case, and the result of one disposed of the three.—The defence embraced the whole extent of the patents granted and published previous to the year 1828, when Mr. Woodworth secured his patent. This was the main point of defence, while the complainants, we are informed, rested on the strength of the patent granted in 1828—as being an original invention, unknown before that time, and that the defendant's employed in their machinery the principles embraced in that patent.

We have been informed that the defence was ably managed, and the complainants also had the most able counsel, viz. John H. Latrobe, Wm. H. Seward, of New York, and John Nelson, Esqrs. for the latter, and Wm. Schley, Esq. for the former. The burden of proof therefore was thrown upon the defendants, while the patents were considered *prima facie* evidence. The testimony consisted generally of a documentary character, with opinions of machinists and scientific men.—The merits of the case lay in this, "*that* if it could be shown that such a description of the machine as that patented in 1828 was in print as would enable any ingenious mind to have constructed it, then Woodworth had no right in the patents. But though the different means and instrumentalities were known in separate operation, and Woodworth combined them and formed an organized machine, adapted to the purpose in view, then Woodworth's first patent was invulnerable. Here we must mention, that a second patent, or rather a reissue, was granted to Woodworth, as explained last week in the Scientific American, and the validity of this amended patent was contested, so that it was referred to the question, whether new principles had been introduced which were not embraced in the specifications of the first patent, or a mere substitution of mechanical equivalents for powers already in use in the machine. If the former, the second patent would be invalidated; while the former would substantiate it.

This case occupied the Court for twenty days, during the whole time of its sitting, and the jury were equally divided in opinion during the whole time they were out, and had to be dismissed, which was done on the 6th inst. leaving the case undecided.

Infringement of a Patent for a Spark Arrester.

The Spark Catcher Case of Wilton vs. the Camden and Amboy and the Reading Railroad Companies, for using a double chimney to receive the sparks, that has been on trial before Judge Kane in Philadelphia, resulted in the Jury's giving a verdict in favor of the defendents in both cases, on the 8th inst. It appeared from the evidence that the double chimney to receive the sparks was originally invented by Robert L. Stevens Esq. of this city, and used on the Camden and Amboy Railroad as early as April 1833,—more than two years before the date of the Patent under which suit was brought. The charge of the learned Judge is spoken of by scientific men who were present, as having been replete with sound scientific principles expressed in the clearest and most beautiful language.

Astronomical Telegraph Clock.

The Cincinnati Gazette says that the distinguished astronomer, Sears C. Walker, has been for some time operating in that city for the purpose of determining longitude by telegraphic observation. At his request Prof. Locke undertook to connect his clock with the telegraphic line that its beats should be heard and registered at Pittsburg, and even at Philadelphia. On Wednesday week the machinery was made by Joseph M. Locke, and on the following Friday evening the clock sent its beats along the whole line to Pittsburg. At this last place the register was put in motion, and the fillet of paper came out marked with lines of equal length each, representing a second of time, and each being made in exact correspondence with the swings of the pendulum, and precisely at the same moment. By a slight imperfection in the adjustment of the breaches between, the lines were probably unequal; this, which was already known to Prof. L., was perceived on the register at Pittsburg, and announced from that city. Prof. Locke (the problem being clearly and particularly stated by Prof. Walker) has finally devised a plan by which a clock at Cincinnati shall not only be heard at Philadelphia, but shall register on the running fillet of paper the hours, minutes and seconds, and also the exact fraction of a second at which a star or other celestial body passes the meridian at either place. Say first, the observer at Philadelphia by a quick touch registers the transit of a star observed at that place, and afterwards the observer at Cincinnati registers the transit of the same star over the meridian at this place, both of these points of time and the intervening interval will be registered on the same fillet by means of the same clock. That interval will be the difference of time, and of course the longitude of Cincinnati west of Philadelphia, say 37 minutes and 20 seconds. Nor is it material where the regulating clock and the register are placed so they are both in the circuit. Mr. Bond, the astronomical observer at Cambridge, Mass. had proposed a plan by which a clock should communicate its beats to the telegraph. But Prof. Locke's plan differs from his, and from that of others proposing to solve the same mechanical problem, in having no electrical current through any part of the clock itself, and in having the pendulum left entirely free and unconnected with any unusual machinery."

This is a clock not exactly new. The electric telegraph clock is now eight years old, but as it regards its application to determine longitude, we are not aware of its having been so employed before, and its application for astronomical purposes is certainly new and ingenious. It is inexplicable to us, however, how the pendulum is entirely free from any *unusual* machinery, and yet the circuit broken and closed by the clock every second to mark the fillet of paper.

Patent Telegraph.

Our readers will perceive among our weekly list of Patents, one granted to Mr. Bain for his Electro Chemical Telegraph. It is an American patent for one granted in England in 1843. Mr. Bain applied for a patent on his improved telegraph, patented in 1846, which was contested by Professor Morse and decided against the former by the Commissioner. It was our opinion all along that Mr. Bain should have received a patent for his improved apparatus, as he undoubtedly had the best right to it, and paying $500 for it he wished to secure the one that extended to 1860. Instead however of being able to do this, he had to deposit a second $500 and accept a patent (to protect his rights) which will expire in 1857. We believe that the date of the patent in a foreign country should always coincide with its date in this country. We consider it a just rule in our Patent Office, and one that was adopted (we believe) only about six months ago, to examine no application of an English patent until it is enrolled—but the enrolment of an English patent is certainly *prima facie* evidence of priority of invention from the date of the patent—no one will dispute this

To those of our readers who do not know what the meaning of the *sealing* and *enrolling* of an English patent is, we offer an explanation of the same. A patent is granted in England upon petition with only the title, not the description of the invention given, but it is only granted with this provision, "*that the applicant does within* a certain number of months file a full description of the said invention," called the *enrolment*. We do not approve of this method of doing business. The application and specification should be filed before a patent is granted. Our Patent Law requires this. But the different manner of doing business in the English Patent Office and ours, simply lies in this: our Patent Office grants a patent about six or nine months after the application and sperification are filed—the English Patent Office grants one about six months before the specification is filed. Which is the best practice? We do not say that it is part of our patent law to keep an inventor in suspense for nearly a year before he knows whether his petition will be granted or not, but in practice, it has been so for the last three years, to the great injury of inventors' interests. Since the Examining corps was increased by the late act of Congress, the Patent Office has made up much of its *leeway*, but no application for a patent should lie longer than three months in the Patent Office, before a decision is made to reject or grant it.

Wonderful Announcement.

WORCESTER MASS, Nov. 29 1848

GENTLEMEN.—During the winter of '45, while prosecuting some experiments having for their object the rapid decomposition of Water, I made some discoveries that led me to believe that it was possible to separate its component parts by mechanical action. By the term, Mechanical Action, I mean that a machine could be constructed which when put in motion by the agency of springs, weights or other power, would produce a rapid and powerful current of electricity at all times, and in such volume or quantity as to convert water into its component gases, so effectually and speedily, that it could be used as a source of light for both public and private purposes.

Since the period above named I have continued the experiments at intervals, and I am now enabled to announce a successful result. I have produced a light equal in intensity to that of four thousand gas burners of the largest "bat's wing" pattern, with an apparatus occupying four square feet of room, at a cost of One Mill per hour, the current of electricity being evolved by the action of machinery wound up with a common lock key, and the only materials consumed are Water and Lime.

I am now engaged in making an apparatus for public exhibition, which will be completed this winter, and all its parts submitted to public inspection, except the interior of the generator. This apparatus I shall exhibit one year, at the termination of which I will make public the mechanism of the Generator.

The object of this Circular is to announce the discovery to the different scientific bodies of America and Europe. I keep the secret of the mechanism for the period hereinbefore mentioned, to give any other individual an opportunity to establish a prior claim. If any other person or persons have succeeded in perfecting such an apparatus, or have in their minds mechanical arrangements that will produce the results my apparatus exhibits, there is an opportunity for them to prove the fact before I explain my method.

The history of the Magnetic Telegraph, Ether Discovery, Gun Cotton, and many other discoveries of the present day, has satisfied your writer that Friends and Patent offices are not infallible.

I know that my discovery is so important, that when it is made public, I cannot control it. A thousand different ways will be devised by the public to reap its benefits without respect to my patents, but I am determined that the honor of the discovery shall not be stolen from me, nor its force and value destroyed, by the assertions of any one that I owe my success to the genius of others.

Yours HENRY M. PAINE.

The above circular which Mr. Paine has sent to us is virtually a challenge to the whole world, something in the "Spirit of the Times" style. We must await in calm suspense the developement of this wonderful discovery. A part of the above statement which puzzles us to understand, is the *mechanical action*, which by *springs* and *weights* generates a current of electricity that decomposes water and yet lime is also used. There is something of a chemical, as well as mechanical combination here. A voltaic battery will decompose water rapidly, and the gases can be consumed on a piece of spongy platinum; but what of this, it is not so cheap as gas. It will indeed be something new to the Scientific World, when *mechanical* electricity will be exhibited decomposing water and sustaining for ten hours 4000 lights of the large bat's wing size, for one cent.

If there is no gammon about this announcement "there is no corn in Salem," nevertheless we shall see what we shall see.

Mr. Paine has made himself quite conspicuous by his genius, and announced discoveries. We feel bound to honor and respect true merit, but the only basis for such feelings towards any inventor, is the results which he has produced. What has become of his *Excelsior* steamboat, what are its practical merits, what has it accomplished in comparison with others? Will some of our Worcester friends, of which there are not a few, inform us?

Astronomical Intelligence.

Among the appropriations made by Congress during the last session, was one for a series of observations for determining the parallax of the Sun and Planets; or, in other words, their distances from the earth by a new process. One set of observations is to be made by Lieut. J. M. Gillis, of the United States navy, in Chili; while corresponding observations are to be made at the Northern Astronomical Observatories of this country and Europe. The difference of latitude between the observations made north and south of the equator will furnish a base line from which, with the required angles, may be calculated the distance of the sun and planets. The necessary instruments for prosecuting the labor assigned to Lieut. Gillis, (who is now in Washington city) are in course of preparation. They will probably cost not much less than five thousand dollars, and as soon as completed the Lieut. will start upon his scientific pilgrimage.

Extensive Coast Survey.

An expedition is now in course of preparation in this city under the direction of the Navy Department, to proceed to the coast of California and Oregon. The vessels, two in number, will be under command of Lieut. Mc Arthur, of the navy, and it is expected they will be ready to proceed in the early part of the coming spring. The cutter Ewing, recently in the revenue service, and a brig purchased for the purpose at Baltimore, will compose the expedition.

Six sets of Meteorological Instruments have been sent from the Smithsonian Institute to the coast of Oregon and California for the purpose of establishing a series of meteorological observations on the western side of the mountains. It is believed that interesting meteorological facts relative to atmospheric disturbance over the continent of North America will be obtained. At the last session of Congress, the sum of $2000 was appropriated for meteorological observations under the direction of the Secretary of the Navy, and as the Smithsonian Institute has also embarked in it, the Navy Department has directed Professor Espy, who acts for it, to conduct his labors in connection with those of the Institute.

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Woodworth's Planing Machine.

(*Continued from our last.*)

It would be too much for me in an interlocutory proceeding like this to deny the validity of these letters-patent. I am inclined rather to adopt for the time the language of Judge Story (in the case of Woodworth v. Stone, 1st Circ. May T. 1845,) on a question not unlike the present, and take the countersignature, as he did the re-issue of the patent, "to be a lawful exercise of the officer's authority, unless it is apparent on the very face of the patent that he has exceeded his authority."

4. It is contended, that the grantee of a right under letters-patent cannot maintain a suit in a circuit which forms part of Pennsylvania, if he derives his title through a foreign administrator.

This idea refers itself to the local laws of Pennsylvania, which as it seems to me, have no application to the case. By the act of 1836, "*all* actions, suits, controversies, and cases" whatever, arising under the patent laws, are without any exception originally cognizable in the courts of the United States; and it has been held in the only case in which the question has arisen, (Parsons v. Barnard, 7 Johns. 144,) that this jurisdiction is exclusive The right, which is vested by letters-patent, has its origin in the patent-laws, and is transferrable and transmissible according to their provision. On the death of the patentee in this case, it passed under them to his administrator; and as it was, a personal right, the administrator constituted by the forum of the domicil became liable to account for it.—If the right has been since violated, he may sue for damages in his own name, as for a wrong to his possession: if he had sold it in whole or in part, he may recover the price in his own name, as for a breach of contract with himself. (Grier v. Huston, 8 S. & R. 402, Wolfersberger v. Bucher, 10 S. & R. 13.) I cannot doubt, therefore, that William W. Woodworth, the administrator, to whom the letters-patent passed upon the death of the patentee, might himself have maintained an action in the Circuit Court for a breach of the patent right, without taking out any new letters of administration in Pennsylvania.

Still less can I doubt the power of this court to interpose by injunction in such a case, to prevent an intended violation of right. It would be almost equivalent to a judicial repeal of the letters-patent upon the death of the patentee, to affirm that the restraining action of courts shall have no operation beyond those of the twenty-eight or thirty states in which the patentee is represented by a local administrator.

But were the law in this particular otherwise than as I believe it to be, it is by no means true, that the incapacity of a foreign administrator to sue implies the same consequence to his alienee. On the contrary, it has been expressly declared by the highest of our courts that where a plaintiff's title is derived through a foreign administration, it may be asserted in a judicial proceeding here, without constituting a domestic administrator. (Trecotheck v. Austin, 4 Ma. 35-6; Harper v. Butler. Pet. 239.)

5. A good deal of evidence was adduced to show that the amended specification describes a different improvement from that which is embraced in the original patent; and it was argued, that the amended patent was invalidated by the variance.

This however, on the authority of Judge Story, in a case affecting this very patent, (Woodworth v. Stone, *ut supra*,) I do not regard as open to question at this time. "It appears to me," he said, "that prima facie, and at all events in this stage of the cause, it must be taken to be true that the patent is for the same invention as the old patent; and that the only difference is, not in the invention itself, but in the specification of it. * * * * For the purpose of the injunction, if for nothing else, I must take the invention to be the same in both patents, after the Commissioner of Patents has so decided by granting a new patent."

Though thus relieved from the necessity of passing upon the question, I feel bound to remark, that the evidence has not satisfied me of the fact it was intended to establish. The very title of the patent, in the words of the inventor, "his Improvement in the method of planing, tongueing, and grooving, *or either*," and the expression in the body of the specification, that after the planing is completed, the tongueing and grooving apparatus is to be used "*if required*," indicate to me that the patentee had in his mind from the first, a machine of several parts or systems, which could be used separately or in combination, as his administrator has developed more fully in the amended specification. So too, his omission to declare in the first specification, that he employs rollers for retaining the board in its place while planing, though fully set out in his amended specification, cannot, in my view, support the idea that the inventions described are not essentially the same. The rollers, which he refers to in the first specification, and which are more unequivocally shown in the drawing annexed to it, as giving motions to the board, would almost necessarily perform the double office: besides which, there are other devices well known to mechanics, which could be conveniently adapted to the object. I see nothing in the two specifications, which could justify me in referring them to different machines.

These preliminary objections being disposed of, three questions present themselves:

1. Was William Woodworth the inventor of the machine, for which he obtained letters Patent in December, 1828?

2. Has he had since the issuing of the letters-patent, such an exclusive and continued possession under them; or have his rights as patentee been so vindicated by the judicial action, as to claim for him the summary intervention of Equity at this time for his protection and repose?

3. Is the machine now made or used by the defendants the same in principle and substance with the machine so patented, or with any material and distinguishable part of it?

1. 2. The two first questions have been so often decided in the Circuit Courts of the United States, as to dispense with the consideration of them at this time. In the case of Van Hook against Scudder, in the Circuit Court for the Southern District of New York. in 1843; and in another case in the Northern District of the same state; in that of Wilson v. Curtis in the Fifth Circuit, Louisiana District; in Washbourn v. Gould, in the First Circuit, before Judge Story, at May Term, 1844; and in twenty other cases decided summarily immediately afterwards by the same judge; and again, in Woodworth v. Stone, at May Term, 1845;—in all of these, and in numerous other cases which have been alluded to in the arguments, the Woodworth patent has been recognized as valid, and the claimant under it as entitled to protection by injunction.

Two cases only have been mentioned, as implying a different opinion. The first is that of Woodworth v. Wilson, in the Circuit Court for Kentucky, where an injunction which had been granted was dissolved after more full hearing. But in this case the decree dissolving the injunction was reversed by the Supreme Court at its last session, and a perpetual injunction directed.

The other case is that of Richards v. Swimley, on the Equity side of this Court, No. 1 of April session, 1841, in which Judge Hopkinson is supposed to have refused an injunction to claimants under the Woodworth patent, against a person who used a machine closely resembling that of these defendants.—But an inspection of the record shows the supposition to be mistaken. The bill in that case was filed on the 4th November, 1840; and notice was given of a motion for an injunction, to be made on the 14th. On that day they omplainants filed two affidavits, which defined the infraction to consist in the use of Woodworth's tongueing and grooving apparatus, making no mention of the machinery for planing. It does not appear that the motion was ever heard; and on the 16th, two days after the the time noticed for making it, it was withdrawn by the complainants: since which no proceedings have been had in the cause. The right of the complainants in the machine expired in 1842. No judicial opinion on the part of Judge Hopkinson can be inferrred from these facts; and I am left therefore to the concurrent judgments that have been pronounced in other circuits.

(*To be concluded.*)

The Benefits of Machine Labor.

Mr. Editor,—I have been often pleased to observe the candor manifested by you in treating questions of a controversial or scientific nature, and no subject has received from you greater justice, tempered with judicious language, than the question of machine and hand labor. No one can dispute the fact that in articles of the most absolute necessity, machinery has diminished the cost of production and at the same time added to the number of workmen. Without machinery it would be impossible to raise food, to manufacture implements, to supply fuel and water, to carry on communications, to produce clothes, to build houses and furnish them, and to distribute knowledge at a price which should allow all men, more or less, to partake of the great blessings of civilization. There are some very curious effects of machinery, in the production of articles of inferior value, to those chief necessaries of life which are in such general use among us, and however trifling they may appear in themselves, the want of them would be felt as a severe privation. One article that I have in view could not be made without machinery, or otherwise very coarsely and as mere curiosities, but with machinery they are made in such numbers that they constitute very large branches of trade, and give employment to hundreds of thousands of people.

This article is employed in dress, which is at once so necessary and so perfect that the highest lady in the land uses it, and yet the poor as well as the rich are enabled to procure it. If the article was made by hand alone it would become so dear that the richest could only afford to use it. The article that I have reference to is a Pin, simple in form but valuable in its use. A pin hammered by hand would present a number or rough edges, which greatly injures clothes, and is removed by the machine made pin, and thus its beneficial effects are visible to all.

If pin making by machinery was to stop altogether, there would be no remedy for our fair ones, but to rely upon the old skiver which the Indian maidens use to secure their blankets. Success I say, to every improvement in machinery, and success to the Scientific American, the advocate of invention, industry and improvement in the Arts.

John Kempton.

Fairhaven, Mass. Dec. 7, 1848.

Romatic but True.

About twenty or thirty years ago, one of the fair dames of Paisley, Scotland, was offered the hand of an anxious and importunate suitor. The lady was, however, deaf to all the entreaties of her admirer and he shortly left for America. In America, it appears, that he soon found one willing to share his fortunes, for "better or for worse," and to her he speedily got united A numerous progeny blessed their wedded life; but the wife, after seeing some of her children get rather beyond their teens, bade adieu to this world and all its concerns. The husband had by this time amassed a considerable fortune, and speedily bethought himself of securing another helpmate. He cast his eyes across the Atlantic, and found that the lady who had formerly rejected his addresses was a widow with six or seven of a family. To her he resolved to make a second offer, and with this object went lately across to Paisley from the United States. His success was all that he could deeire, and accordingly the widow and the widower were joined in the bonds of holy wedlock. The wife, who was at the time of her present husband's first offer, a blooming airy girl of four-and-twenty, is now a sober sedate lady of full fifty. Her new husband has settled on her a handsome annuity, besides assisting a number of his and her relatives and acquaintances in Paisley.

Coal Pit Explosion.

At Whitehaven in England, a serious accident occurred lately by an explosion in a coal pit, by which 17 persons were killed. The explosion took place from some workmen taking off the top of their Davy lamps to light their pipes, which fired the inflammable air of the pit; and out of 30 persons employed in he works, only one man, engaged in the farthest working from the shaft, succeeded in escaping with life.

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(*To be continued.*)

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Anecdote of Franklin.

Doctor Franklin and I (said Jefferson) were some time together in Paris and we dined one day in a mixed company of distinguished French and American characters. The Abbe Raynal and Franklin had much conversation, amongst other things, the French philosopher observed that in America all things degenerated and he made many learned and profound observations to show this effect of the climate on people although recently from a European stock. Franklin listened with his usual patience and attention, and, after the Abbe had finished, pleasantly remarked, that where a difference of opinion existed, it was the custom of deliberative assemblies to divide the house; he therefore proposed that the Europeans should go to one side of the room, and the Americans to the other, that the question might be fairly taken. It so happened that the Americans present were stout men, full of life, health and vigor, while the Europeans were small, meagre and dwarfish. The Docter, with a smile, cast his eye along the lines and Raynal candidly acknowledge the refutation of his theory.

Expenses of Government.

The following curious statement is put forth The expenditures, per minute, of Washington's administration were $3,82; Adams, the elder, $2 58; Jefferson, $9 95; Madison, $34 88; Monroe, $25 18; Adams the younger, $24 35; Jackson, $35 15; Van Buren, $65 78; Tyler, $43 96: Polk, $145 58.

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TO CORRESPONDENTS.

"D. Z. of Pa."—You will see a Glaze for Earthenware without lead, on page 392, vol. 3. Nothing deleterious in it.

"G. H. of N. C."—We again repeat that enquiries from non subscribers will receive no attention.

"A. B. W. of Mass."—Your model is received but we have not had time yet to examine it as thoroughly as we design to before we advise you concerning a patent. A cut of it shall appear in due time, though with your permission we prefer to take it in regular order with our history of rotaries.

"S. V. R. of Ill."—You can see our remarks in full on the Horse Chesnut in the Farmer and Mechanic of last week. It was published three weeks before in the Scientific American. The paternity is not acknowledged by our copying friends—but that we care not about—we are always willing to give our neighbors light upon any subject.

"D. W. of La."—Your Electric Clock is ingenious but no patent could be obtained on it, as the principle is the same as some others that have been constructed, but the mechanical arrangement is somewhat different. We have seen several. Some that are now in this city are very simple. The way in which they are formed, is to have two arch-formed helices around a magnet connected with the battery and placed on each side of the lower end of the pendulum which is a magnet, and by the vibrations of the pendulum, the current is broken and closes alternately, so that the magnet in the pendulum is continually moving from side to side, and drives the clock work above in the usual manner. Your Railroad alarm is new to us and is a good and humane invention.

"Miss A T. of Lawrence, Mass."—We know of no place where cotton thread balling is carried on, nor have we seen any balled thread, but the imported kind.

"J. McC. of Shelby Co."—You do not gain any power by having a truck and propelling your machinery in the manner you suggest. A man could do more labor by means of a crank than by pushing the car around, of course.

"H. T. of Mass."—We do not think that your guage cock will infringe upon Mr. Adams' in the least. We hope you will send us one of your make immediately and then we can determine better in regard to it.

"P. C. of Mobile."—We cannot answer *all* your questions for a less sum than $5. Remit us a V. and we will look up the information that you desire.

"J. P. A. of Ct."—Your invention for producing lights under water is not new. It is substantially the same as the plan now in use. $1 all right.

"J. H. of N. Y."—Soak your felt in a solution of strong alum and dry it in a very warm room. This will do for wool also. If you mix magnesia with the alum, all the better. It won't burn.

☞Some time ago we received a communication describing a new and valuable surveying instrument, which we designed to notice at the time, but from the absence of the author's name, (no doubt by mistake) we have not done so. We have the communication still and await only the author's name to give as full an account of it as we can.

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"E. C. of Me"—Your model and funds were duly received and your business is progressing.

"H. D. of N. H."—We cannot advise you properly until we see your model. If it is what you represent it to be the sale of a single right will more than pay the cost of the patent fee. Send the model immediately.

"H. G. C of Me."—We do not think that your invention possesses sufficient novelty to warrant an application for a patent. We should advise you to withdraw the amount deposited with us and put it to better use.

"N. C. F. of Md."—We shall require $20 more from you and if you can we had rather you would send along some California gold and save us the discount which we should be obliged to pay on country money.

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"P. B. of Mass."—Both of your specifications with drawings and models were despatched to Washington last Monday. The engraving shall appear in our next.

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Reference:—E. C. Kelly, 145 Magazine st.; Aloysius Z. Hilbert, N. O. City Mills; Joseph Landis & Co. Franklin Mills, 14 Poydras st.; A. C. Jones, Crescent Foundry, 55 Girod st.; J. McClusky, Practical engineer; Charles Byrne, 51 Tchoupitolas st.; J. S. Robison. d9 4t*

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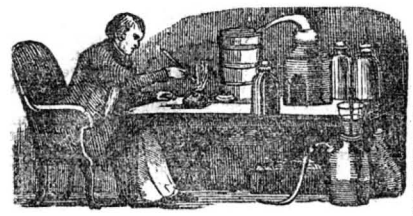


For the Scientific American.

New Chemical Law.

No. 13.

Proceeding in the classification by the similarity of the chemical properties of substances, we may probably arrive at the following aggregated series derived from the aggregation of a radical whose atomic weight is 6.85.

		Sp. Gr.	
Aluminum	6.85X 2=13.70		solid.
Chromium	6.85X 4=27.40	5.90	solid.
Molybdenum	6.85X 7=47.95	8.60	solid.
Vanadium	6.85X10=68 50		solid.
Tungsten	6.85X14=95.90	17 50	solid.

The principal properties which characterize these substances, are their extreme bitterness and infusibility. Even Aluminum the lowest substance in the series requires for its fusion a temperature greater than that at which cast iron is liquified. The fusing points of the other substances are much higher, which is in accordance with the requirements of the law. The following shows the close agreement of which is found to exist between the the calculated and experimental and atomic weights.

	By Calculation.	By Experiment. Kane.	Turner.
Aluminum	6.85X 2=13.70	13.70	13.70
Chromium	6.85X 4=27.40	28.19	28.00
Molybdenum	6.84X 7=47.95	47 96	47 70
Vanadium	6.85X10=68.50	68.66	68.50
Tungsten	6.85X14=95.90	94 80	99.70

The following example gives a list of the acids, with their compositions, showing that in this case the aggregated substances in uniting with oxygen to form an acid, unite with an equal number of atoms of oxygen according to the requirements of the law. The specific gravities, &c. are not recorded.

Chromic Acid 4R+O3. solid
Molybdic Acid 7R+O3. solid.
Vanadic Acid 10R+O3. solid.
Tungstic Acid 14R+O3. solid.

This series of acids is remarkable for the variety of colors which their combinations produce. Perhaps it may be thought by some that since the combinations of aluminum are generally colorless, that it does not belong to the family. But this does not follow: for the compounds of alumina, although they do not like the other compounds, absorb the rays of light, yet it absorbs the rays of heat in a remarkable degree. We may consequently conclude that this is no reason why it should not belong to the same family, as the rays of light are analagous to the rays of heat. The following gives an example of the Chlorides with their composition.

Chloride of Aluminum 2R+Cl.3. solid.
Chloride of Chromium 4R+Cl.3. solid.

The chloride of molybdenum, vanadium and tungsten of the above form of composition, have not yet been discovered, although a number of other chlorides exist. I introduce the above example expressly to show the close similarity existing between the compounds of aluminum and chromium. An examination of their chemical properties will convince any one that the similarity is complete. All analytical chemists well know that the oxides of aluminum and chromium, are so similar to each other in their chemical properties as to render their separation extremely difficult — The following gives an example of their sulphurets.

Sulphuret of Molybdenum 7R+S3. brown solid.
Sulphuret of Vanadium 10R+S3. brown solid.
Sulphuret of Tungsten 14R+S3. brown solid.

No sulphurets of aluminum and chromium of the above form of composition have yet been discovered; but the similarity of the three remaining sulphurets is complete, and it is singular that they are all precipitated as brown powders but change to a deep black upon being dried. No specific gravities but those belonging to the aggregated series have been given, because unknown. The truth of the law therefore, by these substances, remains to be seen in the results of future experiments.

There is another class of aggregated substances which I intended to produce, and as it is short, and no specific gravities and boiling points are known of any of the substances, I present it here.

	By Calculation.	By Experiment. Kane.	Turner.
Lithium	6.25X 1= 6.25	6.44	10.00
Strontium	6.25X 6=43.75	43.80	43.80
Barium	6.25X11=68.75	68.70	68.70

S. N.

Bridgeport, Conn.

Particular Varnishes.

Crystal Varnish.—1. Genuine pale Canada balsam and rectified oil of turpentine. equal parts; mix, place the bottle in warm water, agitate well, set it aside, in a moderately warm place, and in a week pour off the clear. Used for maps, prints drawings, and other articles of paper, and also to prepare tracing paper, and to transfer engravings.

2. Mastic 3 oz.; alcohol 1 pint; dissolved. Used to fix pencil drawings.

Etching Varnish.—1. White wax 2 oz.; black and Burgundy pitch, of each ½ oz.; melt together, add by degrees powdered aspaltum 2 oz., and boil till a drop taken out on a plate will break when cold by being bent double 2 or 3 times between the fingers; it must then be poured into warm water and made into small balls for use.

2. Linseed oil and mastic, of each 4 oz.; melt together.

3. Soft Linseed oil 4 oz.; gum benzoin and white wax, of each ½ oz.; boil to two-thirds.

Flexible Varnish.—1. India rubber in shavings 1 oz; mineral naptha 2 lbs.; digest at a gentle heat in a close vessel till dissolved, and strain. 2. India rubber 1 oz.; drying oil 1 quart; dissolve by as little heat as possible, employing constant stirring, then strain. 3. Linseed oil 1 gallon; dried white copperas and sugar of lead, each 3 oz.; litharge 8 oz.; boil with constant agitation till it strings well, then cool slowly and decant the clear. If too thick, thin it with quick-drying linseed oil. These are used for balloons, gun bags, &c.

Presence of Copper in the Bodies of Animals.

M. Deschampse of Paris, states that this metal is constantly present in most of the formations in the vicinity of Paris, and seems to be derived from the decomposition of cupriferous sulphuret of iron. It is taken from the soil by plants—and from them by men and animals Copper and also lead are received in part from cooking utensils, &c. Soils free from copper soon obtain a portion by manures. Carbonate of ammonia is the means of carrying copper from the soil into plants, and in the azotised compounds of this metal seems to enter, by a replacement similar to that which takes place in certain ammonical salts. These are a few of the conclusions M. Deschamps draws from his curious investigations.

Cure for Dropsy.

Mr. Lynn of the Irving Institute in a letter to the Christian Advocate and Journal states that his wife was completely cured of severe dropsy by the use of the vapor bath medicated with Apocynum.

Liquids expand by heat in an increasing ratio; a greater dilation occurring at high, than at low temperatures. Thus, if a fluid is heated from 32° to 122°, it will not expand so much as it would do in being heated form 122° to 212°; though an equal number of degrees is added in both cases. In mercury the first expansion according to Deluc, is to the second as 14 to 15; in olive oil as 13.4 to 15; in alcohol as 10.9 to 15; and in pure water as 4.7 to 15.

A magnetic property is given to brass by hammering, supposed to be occasioned by the minute particles of iron separated from the hammer and the anvil during the process, and forced into its surface. This circumstance makes it necessary to employ unhammered brass for compass boxes and similar apparatus.

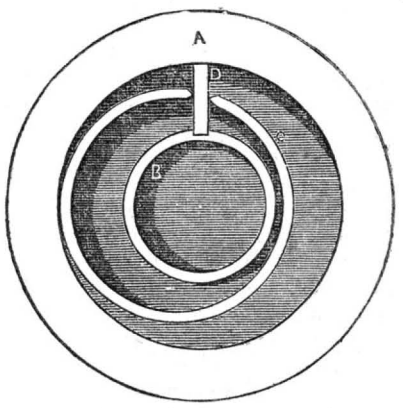
Some suppose our atmosphere to be only 18 miles high, others 50. Whatever it may be, one thing is true, that it is an ocean vast and deep.

History of the Rotary Engine.

Prepared expressly for the Scientific American.

TROTTER'S ROTARY ENGINE.

Fig. 24.



In 1805 Mr. J. Trotter of London, obtained a patent for the following kind of rotative engine which in itself although of little value is eccentric enough to excite curiosity.

A, a circular piece called the outer barrel. B the inner barrel. C, a circular piece called the eccentric. D, a piece called the sweep, which shuts completely across the space between the inner and outer barrels, so as to intercept the communication in that part. There are caps or covers at each end of the pieces, which close the space between the two barrels, and serve, by grooves or other well known fittings, to keep the other parts in their respective places.

The situations and motions of the parts herein enumerated are as follow:—1st, the barrels are concentric; 2ndly, the sweep is capable of moving or revolving (either by absolute or rotative motion) through the space between the barrels: it may be either separate from the barrels, or it may be fixed to either or both of them, and in the last mentioned cases, the barrel or barrels to which the sweep shall or may be so fixed, will necessarily move along with it. The sweep is so well fitted or fixed that no fluid shall pass through the places of its opposition or junction with the barrels or caps, or as that the quantity suffered to pass shall be inconsiderable. 3rdly, the eccentric is of such a diameter and so wrought, that its concave and convex surfaces shall touch the inner and outer barrels, and that the places of contact shall not admit any fluid to pass between the eccentric and each barrel severally, or at least, that the quantity which may so pass shall be inconsiderable.

The eccentric is capable of rotation in its own plane or periphery, but not otherwise with relation to the caps; and it has a long perforation through which the sweep is put, consequently the sweep and the eccentric will always move together.

Whenever the sweep is moved, the space which is between the barrels and the eccentric, and the posterior surface of the sweep, will be continually enlarged, and that the space which is in like manner comprehended between the barrels and the eccentric, and the anterior surface of the sweep, will be continually diminished, excepting that, soon after the sweep has passed at or near the places of contact between the eccentric and the outer barrels, the posterior space will be suddenly diminished by the separation of all that portion which was comprehended between the eccentric or outer barrel, in consequence of the place of contact having come to be behind the sweep. And also, that after the sweep has passed at or near the place of contact between the eccentric and the inner barrel, the posterior space will be suddenly diminished by the separation of all that portion thereof which was comprehended between the eccentric and the inner barrel, in consequence of the place of contact having come to be behind the sweep; and the said portions so separated will then respectively become portions of the anterior spaces, in consequence of the interval or distance which will at the same time be formed between the eccentric and the barrel immediately before the sweep. Whence it is manifest, that if any fluid be forced through one or more apertures from without into the space on one side of the sweep, that pressure will carry the sweep forward and the eccentric along with it, together with such barrels, as by the construction shall or may be fixed to the sweep; and, moreover, if there be any one or more other apertures communicating from the opposite side of the sweep in order to allow the said fluid to escape, or be carried off or condensed, or otherwise disposed of, all such portions of the said fluid as, by the change of situation of the sweep before described, shall be separated from the occupying part of the space behind the sweep, and shall come to occupy part of the space before the same, will, in fact, so escape or be carried off, or condensed, or disposed of, and the rotative motion of the engine will be kept up, and may be applied as a first mover to other works, so long as a due supply to the said fluid shall be afforded.

It is manifest, that in case the rotatory motion of the said engine be produced by any force not applied to its internal parts in the manner hereinbefore described, and any fluid be admitted to communicate with the posterior space within the same, the said fluid so admitted will flow into or be absorbed in the same space, which becomes continually enlarged, and will afterwards be transferred to, and drawn out of, the anterior space which becomes continually diminished as aforsaid: and that, in this application, the said engine may be used to rise or give motion to fluids in any direction whatever.

The above is the language of the specification and presents but the fairest side of the question. There is enough of friction about it to nullify all the proposed good effects of its ingenious construction.

Great Telegraph Feat.

The entire President's Message was telegraphed from Baltimore to St. Louis, the task being completed on Wednesday afternoon, in just twenty-four hours from the commencement. The message was written out in full, following the copy verbatim, even to the punctuation and paragraphs, a thing not usually done in telegraphing. The number of words was 50,000. The idea of such a document appearing in print in a city nearly one thousand miles distant from Washington, twenty-four hours after delivery is almost beyond belief. Well has the poet on our first page sung of its power.

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